

the jig is also supported by heavy trunnions at each end, and the large disks *B* and *C* enable it to be held in different positions. These disks contain holes which are engaged by suitable indexing plungers *D* at each end of the fixture.

Multiple Drill Jig for Yoke Ends. — In automobile shops, the part shown at *X* in Fig. 15 is known as an adjustable yoke end. Even the simplest motor car employs many such parts, and it will therefore be understood that jigs for drilling these yoke ends must be designed with a view to high production. The jig used for drilling the hole *H* in six yoke ends at the same time by means of a multiple-spindle drill head is rather complicated in detail, but may be operated very rapidly.

It is required that the hole *H* be practically concentric with the round end, so that the piece is located in a V-block, between the two pins *F*, shown in the upper view where the plate is broken away. The locating is accomplished by pushing the yoke end between the V-blocks *V* and the flat steel springs *S*. The bushing plate *T* and the entire clamping assembly is removed at this time to make the jig accessible. After the parts have been placed in position in the jig, the bushing plate and assembly are put back in place, and as the pin *C* enters the slot, it is pushed down to the bottom of the socket *K* and locked by turning the knob *M* clockwise. The bushing plate is brought to the right position by registering with the pin *F*, which location also brings the lower buttons of the equalizer bars *B* directly over the yoke ends. Turning the nut *L* clockwise by means of the removable handle *F* brings it against the spherical seat of the clamp plate *N* which, in turn, compresses the helical spring *G* and brings the equalizer bars against the work. The handle *F* is then removed and the work drilled. Reversing the process and rapping the baseplate *D* against the drill table releases the work. The function of the helical spring *G* is to keep the plate *N* against the nut *L* so that a small movement of the handle *F* will permit of unclamping the plate. A hardened steel plate *A* is provided for a seat on which the work rests. It should be noted that the slot in the yoke end is milled out in an operation following the drilling.